



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/566,877

02/02/2006

Louis Robert Litwin

PU030187

1132

24498

7590

02/27/2009

Robert D. Shedd

Thomson Licensing LLC

PO Box 5312

PRINCETON, NJ 08543-5312

EXAMINER

BALAOING, ARIEL A

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

02/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,877	Applicant(s) LITWIN ET AL.	
	Examiner ARIEL BALAOING	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-11,14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-11,14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/01/2008 have been fully considered but they are not persuasive.

Regarding claim 14 and similarly claim 1, the applicant argues *"The Examiner states that New describes the requirements of claim 15. Respectfully, the Examiner is wrong. In particular, the Examiner refers to paragraphs 34 and 40 of New. Paragraph 34 of New states:*

[a]t step 306, the processor searches for frame timing information by correlating the sequences of the Secondary Synchronization Codes (SSCs) during the demodulation of the received signals. The search for frame timing information is performed in accordance with the Second Step search described above for the Three-Step Frame Timing Acquisition Search. At step 308, the processor determines whether frame peaks have been found. If frame peaks are found, then the program flow proceeds to step 310. If frame peaks are not found, the program flow proceeds to step 330.

New, paragraph 34, emphasis added. As underlined above, when New performs frame time, frame peaks are found. This is different from Applicants' claimed invention. Applicants' amended claim 14 requires that that the number of frames processed for acquiring frame synchronization is a function of a peak correlation value found during slot synchronization. Nowhere does New describe, or suggest, using a peak correlation value determined during slot synchronization for determining the number of frames to

Art Unit: 2617

process during frame synchronization as required by Applicants' claim 14. Turning now to paragraph 40 of New, the result is no different.

The number of verification searches performed by the embodiments depends upon the stage where a failure may occur. At step 330, wherein the processor determines whether more verification searches are needed, the processor can use predetermined quantity values that correspond to the stage at which the verification search is called. For example, if a failure occurs at step 304, i.e., no slot peaks are found, then at step 330, the processor can refer to a lookup table that stores a low value, e.g., 1 or 2, for the total number of verification searches to be performed. However, if a failure occurs at step 320, i.e., the mobile station cannot be synchronized to the timing of the broadcast channel, then at step 330, the processor can refer to a lookup table that stores a higher value, e.g. 2 or 3, for the total number of verification searches to be performed. The actual range of numbers in the lookup table does not affect the scope of the embodiments herein. New, paragraph 40, emphasis added.

All this paragraph of New describes is that some "number" is stored in a memory for determining the number of verification searches to perform. Again, nowhere does New describe, or suggest, using a peak correlation value determined during slot synchronization for determining the number of frames to process during frame synchronization as required by Applicants' claim 14.

As a result of the above, Applicants respectfully submit that claim 14 is not anticipated by New. Consequently, dependent claims 16, 17 and 18 are also not anticipated by New." (See page 8 and 9 of the remarks); the examiner respectfully

Art Unit: 2617

disagrees. As interpreted by the examiner the term “determining a number of received frames” and processing “the determined number of frames” refers to a quantity of determined frames (i.e. one or more received frames). As can be seen in paragraph 29, correlation peaks are located at the start of the slots when a specific PSC is used (i.e. determination of a frame as a function of peak correlation). Furthermore, a second step searches for the start of the radio frame by correlating slots with sequences constructed from SSC’s (i.e. frame timing synchronization using slot peaks), which is seen as a processing over the determined number of frames to acquire frame synchronization. This is further seen from Figure 3 and paragraph 34, wherein determined slot peaks are used to acquire framing timing synchronization of step **306**. Therefore, NEW meets the limitations as claimed.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 14, 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by NEW (US 2003/0045299 A1).

Regarding claim 14, NEW discloses Universal Mobile Telephone System (UMTS) equipment (abstract) comprising: a front end for receiving a wireless signal representing a sequence of frames and for providing a stream of received samples therefrom (paragraph 25, 31, 44, 45; primary synchronization code); and a processor for adaptively controlling a duration for performing frame synchronization on the received samples (Figure 3; abstract; paragraph 13, 26, 33-34, 39, 44, 45; duration of the

Art Unit: 2617

processing of secondary synchronization codes depend on verification at various stages of synchronization); a primary synchronization element operative on the received samples for acquiring slot synchronization to a primary synchronization signal of the received wireless signal and for providing a peak correlation value associated therewith (paragraph 29, 31, 33; slot synchronization using peak correlation indicates a frame); and a secondary synchronization element operative on the received samples for acquiring frame synchronization to a secondary synchronization signal of the received wireless signal (paragraph 29, 33, 34; processing of correlated values to achieve frame synchronization); wherein the processor determines a number of frames for the secondary synchronization element to process for acquiring frame synchronization as a function of the peak correlation value (paragraph 34, 40; duration of the processing of secondary synchronization codes depend on verification at various stages of synchronization).

Regarding claim 16, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. NEW further discloses wherein the processor determines the number of frames for the secondary synchronization element to process for acquiring frame synchronization as a function of the peak correlation value and at least one other correlation value (paragraph 13, 25, 29, 31, 33, 34; slot and frame peaks).

Regarding claim 17, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. NEW further discloses wherein the secondary synchronization element operative on the received samples subsequent to slot

Art Unit: 2617

synchronization also provides a possible scrambling code group comprising an M symbol sequence (paragraph 26, 33, 34); wherein the processor (a) determines a number of matches between the M symbol sequence of the possible scrambling code group and each scrambling code group of a set of scrambling code groups, and (b) if the determined number of matches for at-least-one scrambling code group of the set of scrambling code groups exceeds a predefined value, selects the at-least-one scrambling code group as the scrambling code group for use in acquiring frame synchronization (paragraph 26-29, 33, 34, 35, 39).

Regarding claim 18, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. NEW further discloses wherein the processor halts further processing of received frames in the received wireless signal if the determined number of matches for at-least-one scrambling code group exceeds the predefined value (paragraph 26-29, 33, 34; acquisition successful providing at least one code group meets the selection requirement).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2, 5-11, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over NEW (US 2003/0045299 A1) in view of MATHEW et al (US 2004/0161020 A1).

Regarding claim 1, NEW discloses a method for use in a wireless receiver (abstract), comprising: processing a first synchronization code of a received wireless signal to acquire slot synchronization (**302**-Figure 3; paragraph 25, 31; primary

Art Unit: 2617

synchronization code); and adaptively controlling a duration for processing a second synchronization code of the received wireless signal to acquire frame synchronization (306-Figure 3; abstract; paragraph 13, 26, 33-34, 39; duration of the processing of secondary synchronization codes depend on verification at various stages of synchronization); wherein the step of processing the first synchronization channel includes the step of providing a peak correlation value associated with the first synchronization channel (paragraph 29, 31, 33; slot synchronization using peak correlation indicates a frame); determining a number of received frames of the received wireless signal as a function of the peak correlation value (paragraph 29, 33, 34); and processing the second synchronization channel over the determined number of frames to acquire frame synchronization (paragraph 34, 40; processing of correlated values to achieve frame synchronization). Although NEW discloses the use of a synchronization channel containing primary synchronization codes and secondary synchronization codes, NEW does not expressly disclose that said codes are provided over a first and secondary channel. MATHEW discloses providing primary synchronization codes over a first channel and secondary synchronization codes over a second channel (Figure 3; paragraph 33-35). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify NEW to include the teachings of MATHEW, since providing primary synchronization codes and secondary synchronization codes over primary and secondary subchannels of a synchronization channel is standard and conventional in the art. Further evidence can be seen in the applicant's disclosure of the prior art (see paragraph 3 of the specification).

Regarding claim 2, see the rejections of the prior art regarding the subject matter this claim is dependent upon. The combination of NEW and MATHEW further discloses wherein the first synchronization channel is a primary synchronization subchannel and the second synchronization channel is a secondary synchronization subchannel of a universal mobile telephone system [**W-CDMA**] (NEW - paragraph 25, 26; MATHEW – paragraph 33-35; It is further noted that the use of W-CDMA is conventional in universal mobile telephone systems).

Regarding claim 5, see the rejections of the prior art regarding the subject matter this claim is dependent upon. NEW further discloses wherein the processing the second synchronization channel includes the steps of: comparing an estimated received sequence to each one of a plurality of possible received sequences, each sequence including a plurality of symbols (**306**, paragraph 26, 33, 34; synchronization code represents a sequence of symbols); and after each comparison to one of the plurality of possible sequences, identifying one of the plurality of possible sequences as a possible best match (**308** paragraph 26, 33, 34); wherein, in the comparing step, if a number of mismatches for a current comparison is greater than or equal to a number of mismatches associated with the possible best match, the current comparison is abandoned and a new comparison is begun (**330, 336** paragraph 26, 33, 34, 40; predetermined number of verifications searches to be performed).

Regarding claim 6, see the rejections of the prior art regarding the subject matter this claim is dependent upon. The combination of NEW and MATHEW further discloses wherein the step of processing the first synchronization channel includes the step of

Art Unit: 2617

providing multiple correlation values, including the peak correlation value, associated with the first synchronization channel (NEW - Figure 2; paragraph 29, 31; MATHEW – Figure 4; paragraph 37-39).

Regarding claim 7, see the rejections of the prior art regarding the subject matter this claim is dependent upon. The combination of NEW and MATHEW further discloses wherein the determining step determines the number of received frames of the received wireless signal as a function of the peak correlation value and at least one other value (NEW - paragraph 13, 25, 29, 31, 33, 34; slot and frame peaks; MATHEW – Figure 4; paragraph 37-39).

Regarding claim 8, see the rejections of the prior art regarding the subject matter this claim is dependent upon. NEW further discloses wherein the step of processing the second synchronization channel includes the steps of: correlating the received wireless signal to provide an estimate of a received sequence over the determined number of frames (**306**, paragraph 26, 33, 34; synchronization code represents a sequence of symbols); and comparing the estimated received sequence to each one of a plurality of expected received sequences to determine a number of matches thereto (**308** paragraph 26, 33, 34); and if the number of matches to at least one of the plurality of expected received sequences exceeds a predefined threshold, breaking out of the step of processing the second synchronization channel (**330, 336** paragraph 26, 33, 34, 40; predetermined number of verifications searches to be performed).

Regarding claim 9, see the rejections of the prior art regarding the subject matter this claim is dependent upon. The combination of NEW and MATHEW further discloses

Art Unit: 2617

wherein the adaptively controlling step includes the steps of: processing the second synchronization channel to form cumulative data representing a possible scrambling code group comprising an M symbol sequence(NEW - paragraph 26-29, 33, 34; MATHEW – paragraph 35, 39 and TABLE 2); determining a number of matches between the M symbol sequence of the possible scrambling code group and each scrambling code group of a set of scrambling code groups (NEW - paragraph 26-29, 33, 34; MATHEW – paragraph 35, 39 and TABLE 2); and if the determined number of matches for at-least-one scrambling code group of the set of scrambling code groups exceeds a predefined value, selecting the at-least-one scrambling code group as the scrambling code group for use in acquiring frame synchronization (NEW - paragraph 26-29, 33, 34; MATHEW – paragraph 35, 39 and TABLE 2).

Regarding claim 10, see the rejections of the prior art regarding the subject matter this claim is dependent upon. NEW further discloses wherein the selecting step includes the step of halting further processing of received frames in the received wireless signal (**336**-Figure 3).

Regarding claim 11, see the rejections of the prior art regarding the subject matter this claim is dependent upon. The combination of NEW and MATHEW further discloses wherein the selecting step includes the step of: if more than one scrambling code group of the scrambling code group set exceeds the determined number of matches, selecting the scrambling code group with the most number of matches (MATHEW – Figure 4; paragraph 37-39; group providing maximum correlation is chosen from groups above peak threshold).

Regarding claim 19, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, NEW does not expressly disclose wherein if more than one scrambling code group of the scrambling code group set exceeds the determined number of matches, the processor selects the scrambling code group with the most number of matches. In the same field of endeavor, MATHEW discloses wherein if more than one scrambling code group of a scrambling code group set exceeds a determined number of matches, the processor selects the scrambling code group with the most number of matches (Figure 4; paragraph 37-39; group providing maximum correlation is chosen from groups above peak threshold). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify NEW to include the teachings of MATHEW, since MATHEW states that such a modification would provide lower cross correlation between various devices within the system.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2617

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARIEL BALAOING whose telephone number is (571)272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, V. Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VINCENT P. HARPER/
Supervisory Patent Examiner, Art Unit 2617

/Ariel Balaoing/
Examiner, Art Unit 2617

/A. B./
Examiner, Art Unit 2617

Application/Control Number: 10/566,877
Art Unit: 2617

Page 13